Instructions to RFC Authors

1 Status of this Memo

This memo provides information to the NASA Earth Science Enterprise (ESE) community. This memo does not specify an ESE standard of any kind. Distribution of this memo is unlimited.

2 Change Explanation

This RFC does not update or change a previous RFC.

Changes since Version 0.07

> Revised material explaining errata and versioning. This required modifying sections 6.1, 7, 7.1 and 7.4 and removing section 8.

3 Abstract

This document provides information about the preparation of Requests for Comment (RFCs), documents submitted to the ESE community describing proposed standards or other technical notes. These instructions detail certain policies pertaining to the publication of RFCs, acceptable document style, required and optional content, and the packaging and file format requirements for all ESE RFC submissions, from their initial submission until their final release as either an ESE standard or a technical note.

RFCs may cover a broad range of topics related to Earth Science data systems standards and practices. RFCs may be submitted by anyone. All RFCs are available online and publicly accessible by the public.

4 Copyright Notice

5 Table of Contents

6 Introduction

The role of the ESE Standards Process Group (SPG), described in ESE-RFC-001 "Charter RFC" [1], is to manage the ESE's standards process. This includes maintaining an archive of all materials associated with ESE standards and ESE technical notes. The guidelines in this document were developed in order to make this task as simple as possible for both the submitters and the SPG. This document has been adapted from the IETF "Instructions to the RFC Authors" document [2].

ESE RFC submissions shall be submitted to the SPG as described in ESE-RFC-002 [3]. RFC authors and the SPG (via the office of the RFC Editor) will work together to collect all the materials needed to submit an RFC, to track its progress through the ESE's standards process, and to maintain the eventual ESE standard or technical note that results when a submission successfully negotiates the process.

This document provides information about the preparation of the RFC: acceptable document style, the required and optional content of the RFC, the acceptable packaging and document formats, and the policies for the publication of the RFCs. RFCs may cover a broad range of topics related to Earth Science data systems standards and practices. RFCs will be publicly accessible online.

Information about the ESE Standards, and the ESE Standards Process itself, including this document, can be found at the SPG website: http://spg.gsfc.nasa.gov/ in the Directory on the center of the home page. "Earth Science Data Systems Standards Process", "ESE Approved Standards", and "How to Submit and RFC" are of particular interest to prospective RFC authors.. It is recommended that you familiarize yourself with the contents of the ESE Standards Process, ESE-RFC-002 before reading this document. When you are ready to write and RFC, "How to Submit and RFC" provides a step-by-step guide with links to these instructions, document templates, and points of contact.

6.1 Version Management

An RFC cannot be substantially altered once it enters the ESE Standards Process. To accommodate the need for minor editorial changes, corrections or clarifications over the lifetime of an RFC, the SPG has adopted the use of an errata document and a version management system.

Each time the RFC document is modified in a minor (i.e. editorial) way, it is released with a new version number. Alternatively the RFC Editor may choose to list the changes in an Errata file rather than release new versions of the document. The latter approach may be employed as a guard against releasing several new versions in quick succession.

Changes from the previous version must be noted in the Section labeled "Change Explanation" of the RFC.

If more substantive technical changes are required, a new RFC must be written that obsoletes the previous one. For this reason, the authors should thoroughly review the final draft of the document before final submission.

The versioning scheme is explained on the SPG website at
http://spg.gsfc.nasa.gov/About/versionscheme/

The Document Index on the SPG website will indicate whether there is an errata file for an RFC and if so, will provide a link to that file.

If you find what you believe to be an error in an RFC, consult the errata page, if there is one. If the bug is not listed, please send e-mail to the authors of the document, and copy the RFC Editor.

6.2 Not all RFCs are standards

RFCs fall into two broad categories; standards track documents and technical notes. Technical notes, such as this document, do not represent a standard of any kind. Even those documents on the standards track come in three grades -- Proposed standard, Draft standard, and standard -- and only the last is a full standard.

6.3 Publication Language

Because ESE is a NASA program, sponsored by the U.S. government, English is the official publication language for ESE RFCs. RFCs submitted for publication are required to meet a reasonable standard for clear and correct English.

6.4 Normative References

Within an RFC, references to other documents fall into two general categories: "normative" and "informative". Normative references specify documents that must be read to understand or implement the technology in the new RFC, and whose requirements must be complied with for the technology in the new RFC to work. For example, if an ESE Proposed standard is a profile or extension of an existing standard (or if the proposal is to adopt an existing standard unchanged for ESE purposes), then it needs to include a normative reference to the existing standard document, in whatever form it exists. An informative reference is not normative; rather, it only provides additional information. For example, an informative reference might provide background or historical information. Material in an informative reference is not required to implement the technology in the RFC.

The distinction between normative and informative references is often important. The ESE standards process and the SPG RFC publication process must indicate whether a reference to a work in progress is normative because standards-track RFCs cannot be published for review until all of the documents that it lists as normative references have been published. In practice, this often results in the simultaneous publication of a group of inter-related RFCs.

An RFC must include separate lists of normative and informative references (see Section 7.9 below.)

6.5 URLs in RFCs

The use of URLs in RFCs is discouraged, because many URLs are not stable references. Exceptions may be made for normative references in those cases where the URL is demonstrably the most stable reference available.

6.6 Relation to other RFCs

Sometimes an RFC adds information on a topic discussed in a previous RFC or completely replaces an earlier RFC. Two terms are used for these cases: Updates and Obsoletes, respectively.

6.6.1 Updates

Specifies an earlier document whose contents are modified or updated by the new document. The new document cannot be used alone; it can only be used in conjunction with the earlier document.

6.6.2 Obsoletes

Specifies an earlier document that the new document replaces. The new document can be used alone as a replacement for the obsolete document. The new document may contain revised information or all of the same information plus some new information, however extensive or brief that new information may be.

6.6.3 Cross referencing

In lists of RFCs and in the Document Index on the SPG web site (but not on the RFCs themselves), the following are used for older documents that were referred to by Obsoletes or Updates relations in newer documents:

“Obsoleted-by” is used to specify newer document(s) that replace the older document.

“Updated-by” is used to specify newer document(s) that modify the older document.

Updated versions of a particular RFC, as indicated in the ESE-RFC number, are assumed to obsolete any previous version. Therefore, only the latest version of an RFC will appear in the Document Index. Previous versions can be found in the appropriate RFC folder on the SPG web site.

The Document Index is available at: http://spg.gsfc.nasa.gov/docindexfolder/

6.7 Authors Listed on RFC

The primary author(s) of an RFC work closely with the RFC Editor to ready the document for publication. While others may contribute to drafting and editing the RFC, the primary author(s) are equally responsible for the final form and content of the published RFC and must approve the final document. When there are many contributors, the best choice will be to list the person or (few) persons who acted as document editor(s) (e.g., “Tom Smith, Editor"). Contact information for the lead author(s) is provided in the Authors section.

6.8 RFC Content, Style, and Submission Format

There is a distinction between the content of an RFC, the style (i.e. visual appearance), and file format (i.e. what software applications are required/able to edit the document) in which that content is presented. Section 7 presents the content requirements. Section 8 presents the style and format instructions.

All abbreviations that are used in the body must be expanded the first time they occur. A few exceptions will be made for abbreviations that are so well known that expansion is unnecessary, e.g., TCP, FTP, ESE, NASA, etc.

7 RFC Required and Optional Sections

An RFC may contain the following sections. Some of these are optional, as noted. When they are present, the generally recommended order is shown in the following list.

1. Running Page Headers
2. Title
3. Status of this Memo
4. Change Explanation
5. Copyright Notice
6. Abstract
7. Table of Contents [optional for documents less than 5 pages]
8. Body of Memo
8. References [optional]
9. Authors
10. Appendix [optional]
    A. Glossary of acronyms
    B. Other information

The rules for each of these sections are described below in corresponding subsections.

7.1 Running Page Headers

The running header on all but the cover page must minimally include: RFC number, Author, Category, Title, Updates/Obsoletes, and Date. Note that some source document formats such as HTML are not page oriented. In that case, the page header information shall appear once at the top of the document and where possible the Title and Data shall appear in the page title.

Please see any page of this memo for an example of a running page heading.

The RFC number must reflect the current version as described in section 6.1.

"ESE-RFC-NNNvX[.YY]"

"Updates/Obsoletes: ESE-RFC-NNN" or "None" (Note that this shall not be used to indicate a new version of an existing RFC, it is meant to provide information about other RFCs whose use may be affected by this RFC.)

"Category: xxxxxxxxx" (required – may be either standards track or technical note. The "standards track" category indicates that the status is one of: Proposed standard, Draft standard, or standard.)

The author's name is also listed in the header on each page of the RFC. If there are two authors, the form "name & name" may be used; for more than two authors, use the form "name, et al."

7.2 Title

Choosing a good title for an RFC can be a challenge. A good title should fairly represent the scope and purpose of the document without being either too general or too specific.

RFCs that document a particular company's private protocol must bear a title of the form "XXX's ... Protocol" (where XXX is a company name), to clearly differentiate it from an ESE product.

Similarly, RFCs that are profiles or extensions of existing standards should include in the title the name of the standards body that manages the existing standard on which the proposed ESE standard is based. That is, if an ESE RFC defines a profile of an Open GIS (OGC) standard, "OGC" should be included in the title.

7.3 Status of this Memo

Each RFC must include on its first page the "Status of this Memo" section that contains a paragraph describing the type of the RFC and its status.

7.4 Change Explanation

This section provides a description of the update or change when the RFC updates or obsoletes any previously existing RFC. If the RFC does not update or change any others, the content shall be "This RFC does not update or change a previous RFC." If the RFC is a new version, the changes from the previous version shall be described. All previous change information shall be preserved and the most recent information shall be kept at the beginning of the section.

7.5 Copyright Notice

The Copyright Notice section consists of the statement, "Copyright (C) NASA (year). All Rights Reserved." and is required.

7.6 Abstract

Every RFC must have an Abstract section following the Copyright notice. An Abstract will typically be 5-10 lines, but an Abstract of more than 20 lines is generally not acceptable. The Abstract section should provide a concise and comprehensive overview of the purpose and contents of the entire document, to give a technically knowledgeable reader a general overview of the function of the document. In addition to its function in the RFC itself, the Abstract section text will appear in publication announcements and in the online index of RFCs.

7.7 Table of Contents

A Table of Contents section is required in RFCs 5 pages and longer. A Table of Contents section must be positioned after the Abstract and before the body of the memo.

7.8 Body of Memo

Following the Table of Contents, if any, comes the body of the memo.

7.8.1 Introduction

Each RFC should have an Introduction section that (among other things)

- explains the motivation for the RFC;
- describes the applicability of the document, e.g., whether it specifies a protocol, provides a discussion of some problem, is simply of interest to the ESE community, or provides a status report on some activity;
- and in the case of a proposed standard
    - describes why the specification is needed;
    - explains what purpose will be served by making it an ESE standard.

7.9 References Section

Nearly all RFCs contain citations to other documents, listed near the end of the RFC. There are many styles for references, and the RFCs have one of their own. Please follow the reference style used in recent RFCs; in particular, see the Reference section of this RFC for an example.

Reference lists must indicate whether each reference is normative or informative. For example, if both normative and informative references are included, then the reference section should be split into two sections, e.g.:

s. Normative References

[n] ….

s+1. Informative References

[n+1] …

Non-normative references to ESE Drafts are allowed, but they must take the following restricted form: the author(s), the title, and the phrase "Work in Progress", for example:

[6]Doe, J., "The Deployment of IPv6", Work in Progress.

The use of URLs in references in RFCs is discouraged, because URLs are often not stable references. Exceptions will be made in certain cases where the World Wide Web is demonstrably the most stable reference available.

7.10 Authors Section

This required section lists those contributors who deserve significant credit for the document. When a long author list is replaced by a single Editor in the document header, the displaced authors can be properly and fully acknowledged in the Authors section. The name(s) and contact information for the primary author(s) of the RFC, as listed in the first-page header should be detailed here. Contact information must include at least one, and ideally would include all, of a postal address, a telephone number and/or FAX number, and a long-lived email address.

7.11 Appendix

A Glossary of Acronyms should be the first appendix. Additional appendices may contain other information.

8 Submission and Packaging Instructions

This section describes the packaging and file format instruction for all ESE RFC submissions, from their initial submission until their final release as either an ESE standard or a technical note. The intent of these instructions is to provide enough guidelines to make submission easy for all parties without being overly restrictive in any dimension. Authors should confer with the RFC editor regarding submission and packaging prior to submitting materials.

8.1 Submission Formats

All ESE standards and technical notes will be made available as a single file in Adobe Portable Document Format (PDF). [4]. This will be the normative format submitted by the author and published on the SPG web site. ESE RFCs may also be available in their source document format to facilitate subsequent updating and revision over the life cycle of the standard or technical notes.

ESE RFCs shall be submitted electronically as Portable Document Format.

Both Word and HTML use the concept of styles to provide consistency within a document. As a courtesy to authors, the SPG has provided templates for these two common document formats.

All supporting materials (described in Section 8.4) will be made available in their original format or PDF as determined in consultation with the RFC Editor.

All ESE process materials (described in Section 8.6) will be made available in formats determined by the RFC Editor.

8.2 Single vs. Multiple Files

RFC submissions can often include multiple files. This could include a standards track submission and its supporting materials as described in Section 8.4 .

Submissions that contain multiple files should be bundled using a mechanism such as tar format, gzip'ed tar format (tar.gz), or zip’ed format. Please consult with the RFC Editor for preferred formats.

Multi-file submissions should be organized such that all files are contained within one directory (folder) and any number of files and/or subdirectories.

8.3 File and/or Directory Naming

RFC authors must confer with the RFC Editor about naming the file or top-level directory prior to submission.

In the case of submissions requiring supporting materials, all supporting materials shall be named as directed by the RFC Editor.

8.4 Supporting Materials

Before an RFC can be approved as a standard, authors must provide evidence of at least two independent implementations and significant operational experience. Therefore, all standards track submissions will require supporting materials.

8.4.1 Evidence of Implementation and Significant Operational Experience

To become a standard, there must be evidence of at least two implementations or distinct instances of implementations of the standard along with evidence that the standard is being used in a significant way operationally.

An RFC may be submitted to the SPG with only one implementation or instance, and with limited operational use if others are in the process of being established. However, in this case, final approval of the standard will be delayed until more than one implementation or instance can be documented as being in significant operational use.

See ESE-RFC-002 Sections 3.2.2 "Draft Standard" and 3.2.3 "ESE Standard" for additional information.

8.4.1.1 Evidence of Implementation

Implementation of a specification means that there is a working set of software that implements that specification. To become an ESE standard, ideally a specification has been implemented in at least two independently developed software libraries, components, or programs, and that those two or more implementations interoperate. However, it is also acceptable to show that copies of the same implementation, deployed by independent users can interoperate.

The TWG is charged with verifying that there are at least two independent implementations or instantiations that are interoperating.

8.4.1.2 Significant Operational Experience

Significant operational experience means that the implementations of the specification are being used to support the actual operations of the users. In other words, the specification has become part of the normal workflow and is not just part of an experimental or trial use.

The TWG is charged with verifying the significant operational use of the specification.

8.4.1.3 Required Documentation

For at least two instances of implementation, provide a reference to a specific user, group, organization, or community where the standard described by the RFC is in significant operational use.

Be as specific as possible. Include a short description of how the standard is being used in a significant operational setting in each instance. Include names and contact information of people who are using the standard.

Descriptions should include information such as

- What kind of data is being served/transferred?
- A description of the server(s) or client(s) that use the specification
- A description of the kinds of data and amount of data being served, transferred, described, or encoded using the specification
- How extensively is the specification being used?
- What mechanisms, if any, are in place for the maintenance of the specification and its implementations?

8.4.2 Other Supporting Materials

Supporting materials for a submission may include database schemas, XML schemas, source code, copies of referenced specifications, and documentation of implementation or operational use of a proposed standard. Where supporting materials are intended to be used as source material by users of the RFC, they must be provided in the source format (e.g. XML schemas, header files). Where supporting materials are meant primarily to be read, they may be provided as PDF documents.

8.4.3 Note On Supporting Materials

RFC authors shall provide all required supporting materials together with the RFC submission, packaged as described above. As the submission is moved through the process, additional supporting materials may be required. These materials shall be supplied as soon as they are available, based on the same rules as the original submission. Thus, submissions that require supporting materials are by their nature multi-file submissions and RFC authors should plan accordingly.

Submissions of technical notes should generally be single-document submissions, as no supporting materials are required.

8.5 Submission Mechanism

Authors should contact the RFC Editor for submission instructions.

8.6 ESE Process Materials

As a submission, particularly a standards track submission, is moved through the process, additional materials will be generated. This includes SPG notes, TWG notes, public comments, SPG decisions, evidence of implementation, and so on.

The RFC Editor shall collect these materials, package them, and maintain them as part of a collection that includes the submission and its supporting materials.

9 References

[1] ESE-RFC-001, Charter RFC

[2] IETF Instructions to RFC Authors

[3] ESE-RFC-002, process RFC

[4] http://www.adobe.com/products/acrobat/adobepdf.html

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11 Appendix A - Glossary

ESE - Earth Science Enterprise

FAX - Facsimile

FTP - File Transmission Protocol

HTML - Hypertext Markup Language

IETF - Internet Engineering Task Force

NASA - National Aeronautics and Space Administration

OGC - Open GIS Consortium

PDF - Portable Document Format [4]

RFC - Request for Comment

SPG - Standards Process Group

tar - Tar Archive

TCP - Transmission Control Protocol

TWG - Technical Working Group

URL - Uniform Resource Locator

XML - eXtensible Markup Language